

FIGURE 1.1A

005207 40296960

20 11 99 07 13A David L. Stewart

703 441-2025

P.O.

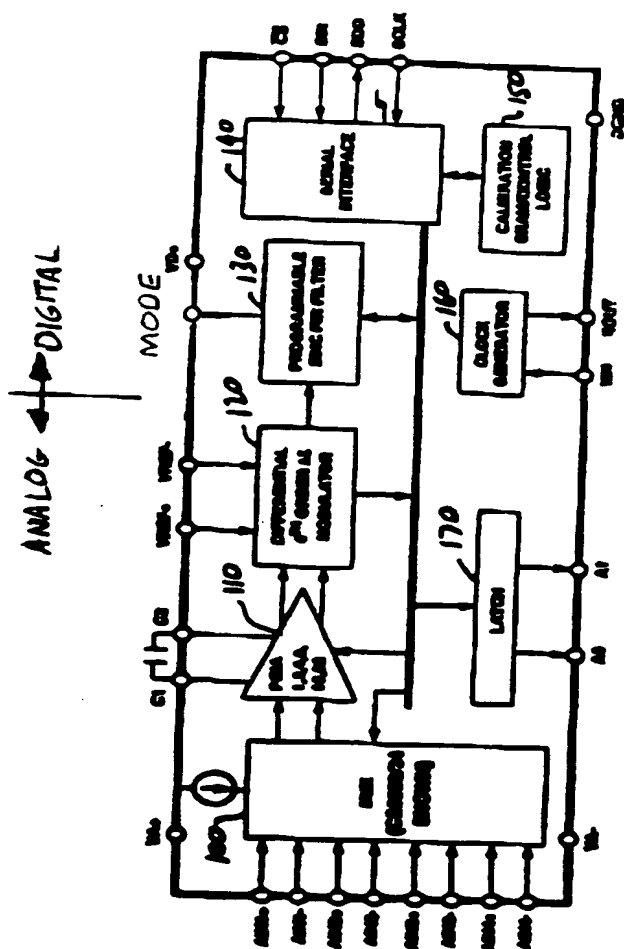


FIGURE 1.1B

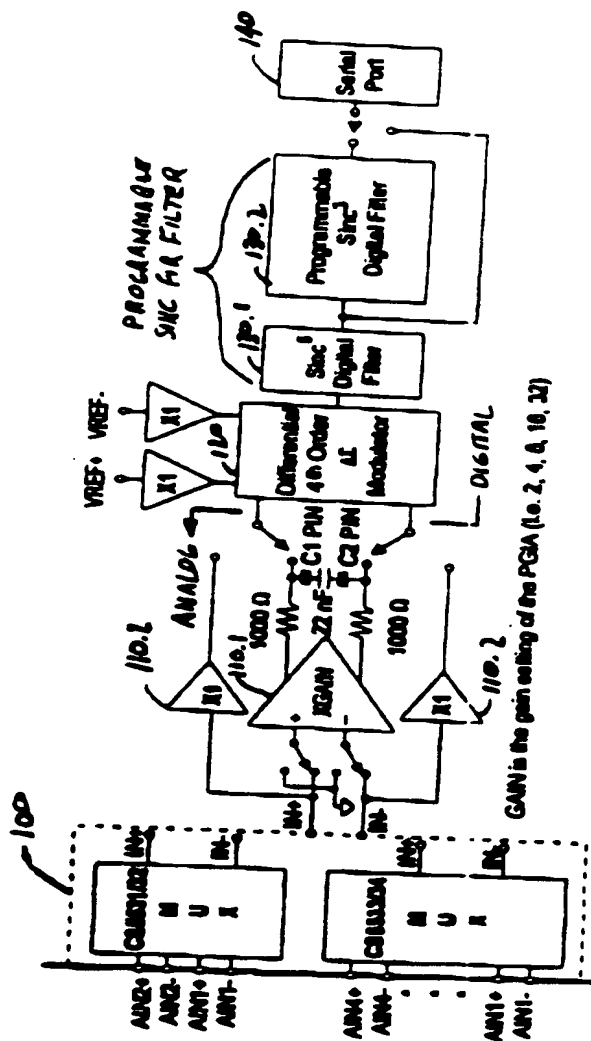


FIGURE 1.2A

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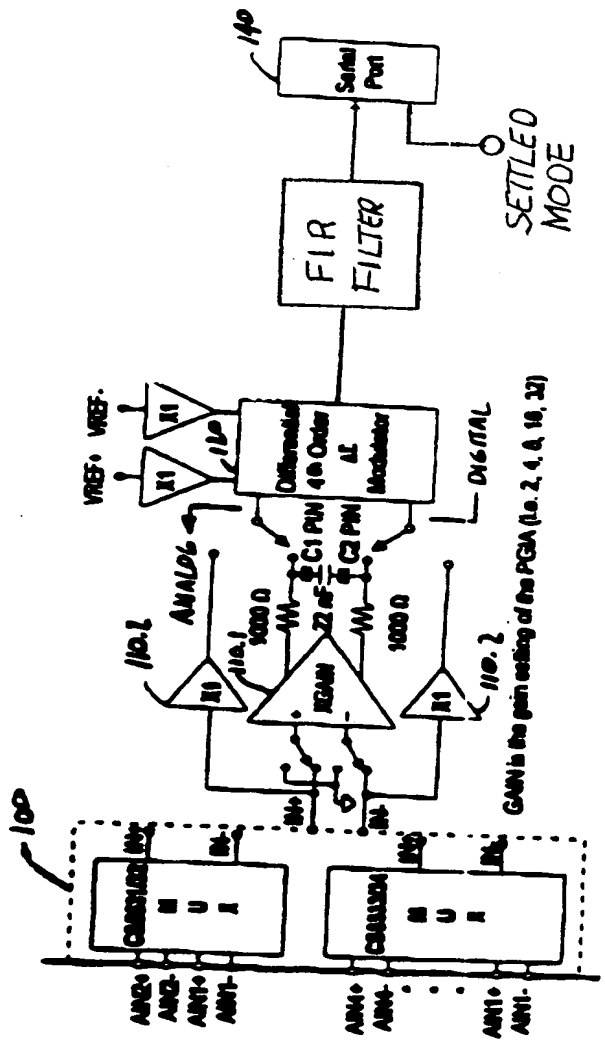


FIGURE 1.2 B

Handwritten notes:

- 100
- ANQ+ ANQ- ANI+ ANI-
- ANM+ ANM- ANI+ ANI-

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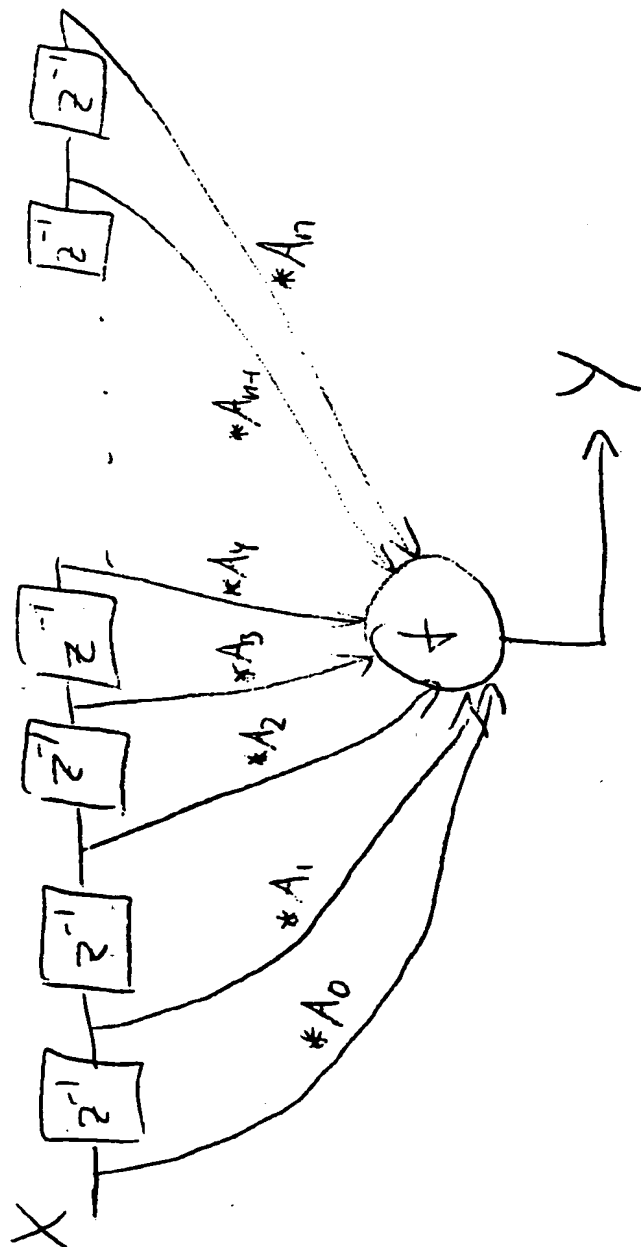


Fig 1.2c

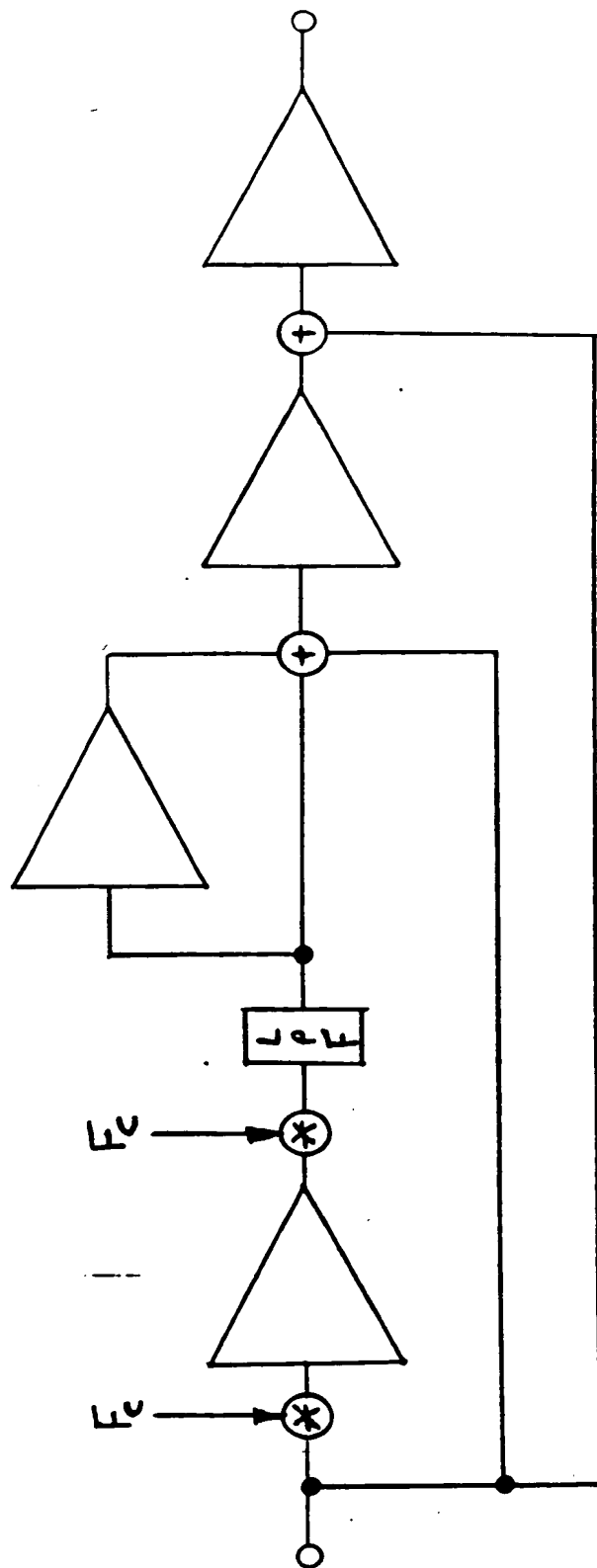


Figure 1.3

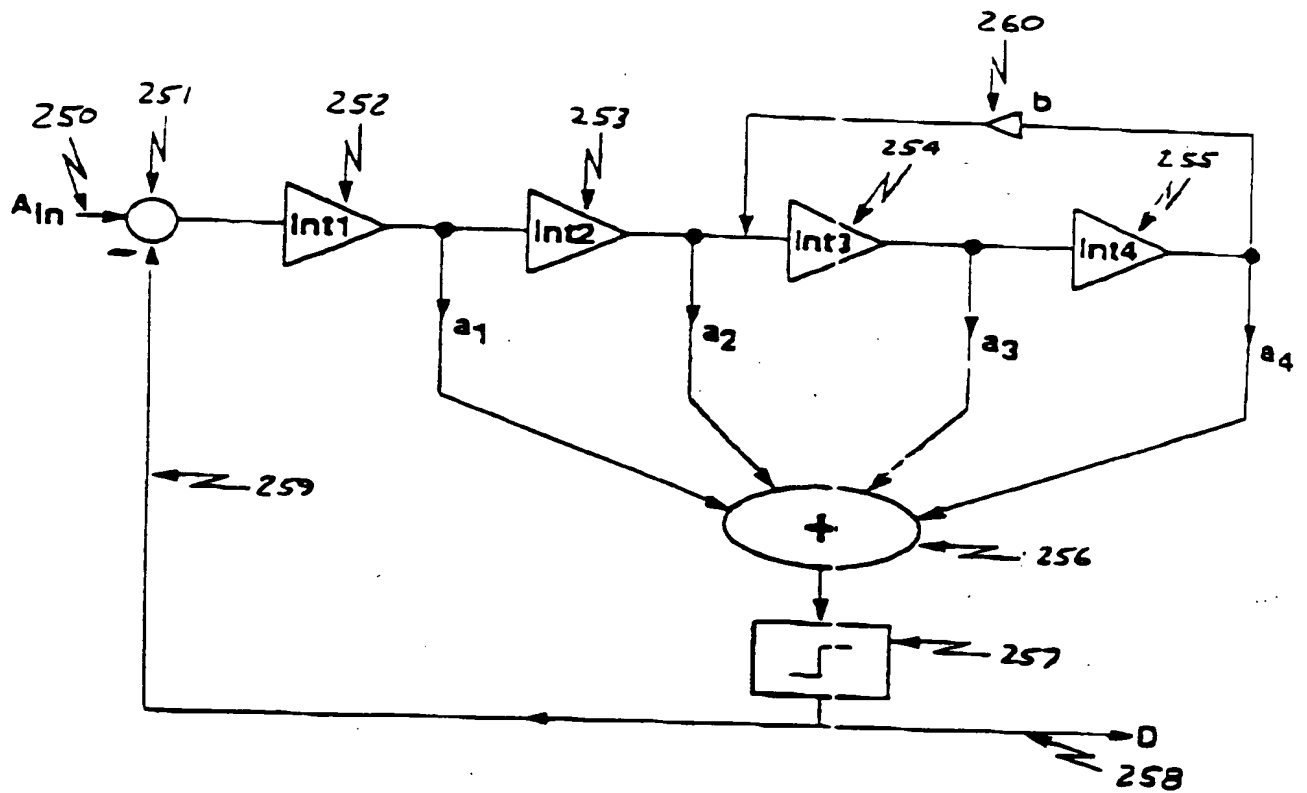


Figure 1.4

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# DIGITAL BLOCK DIAGRAM

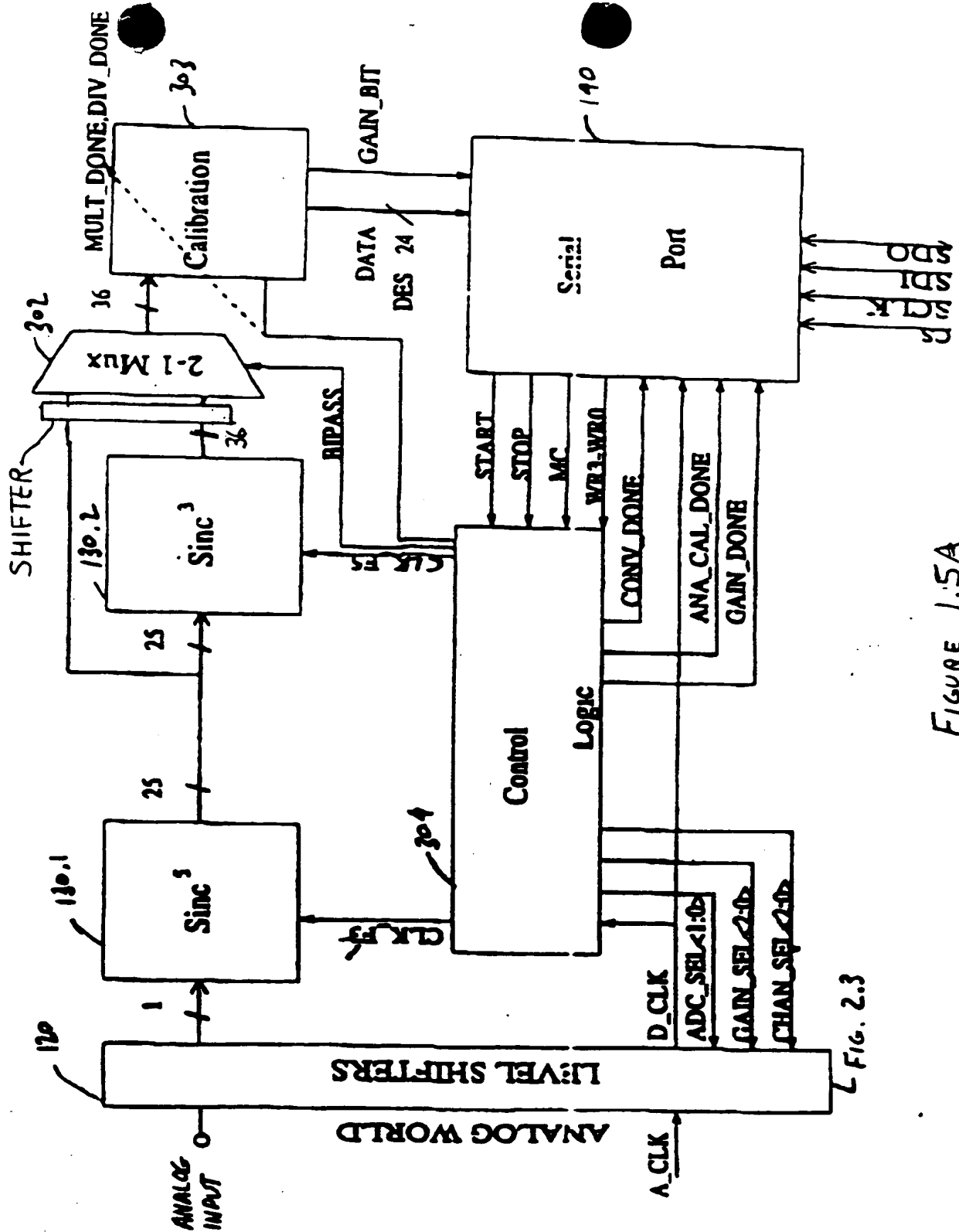


FIG. 2.3

FIGURE 1.5A





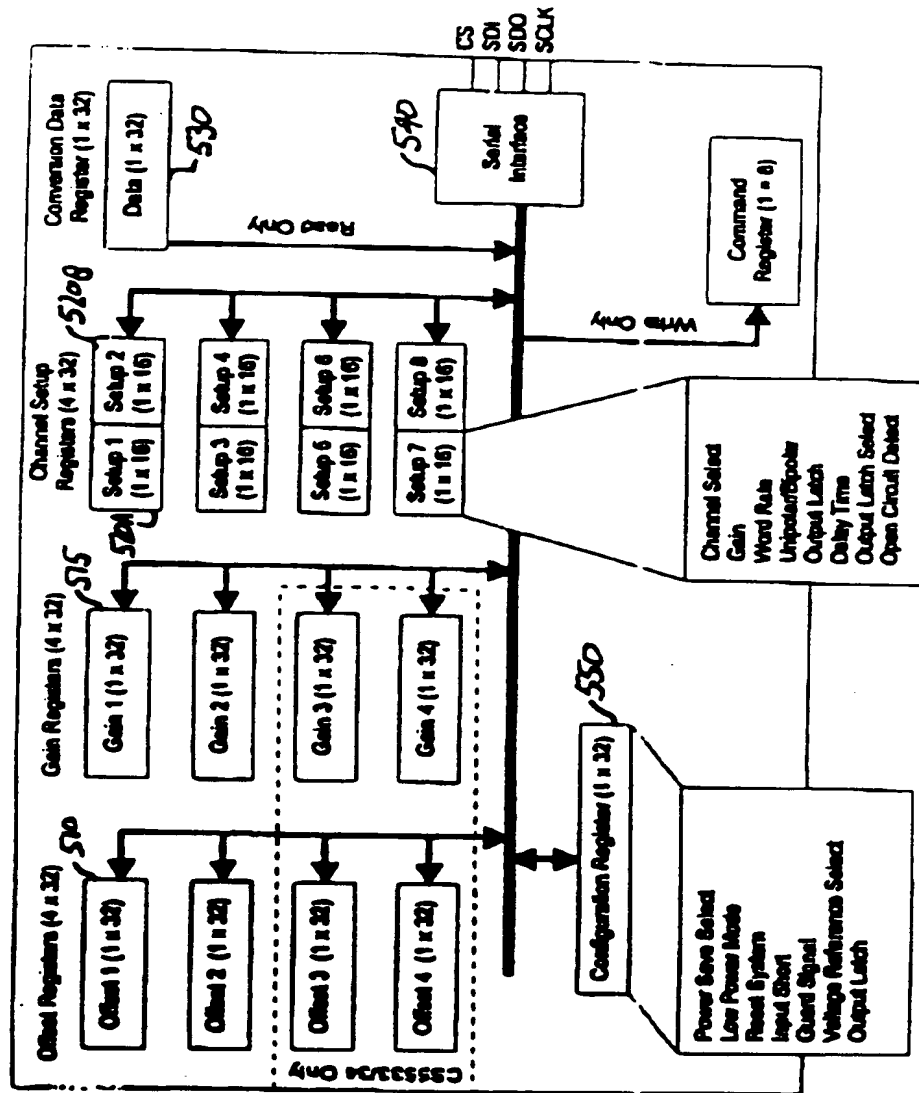


FIGURE 1.6A

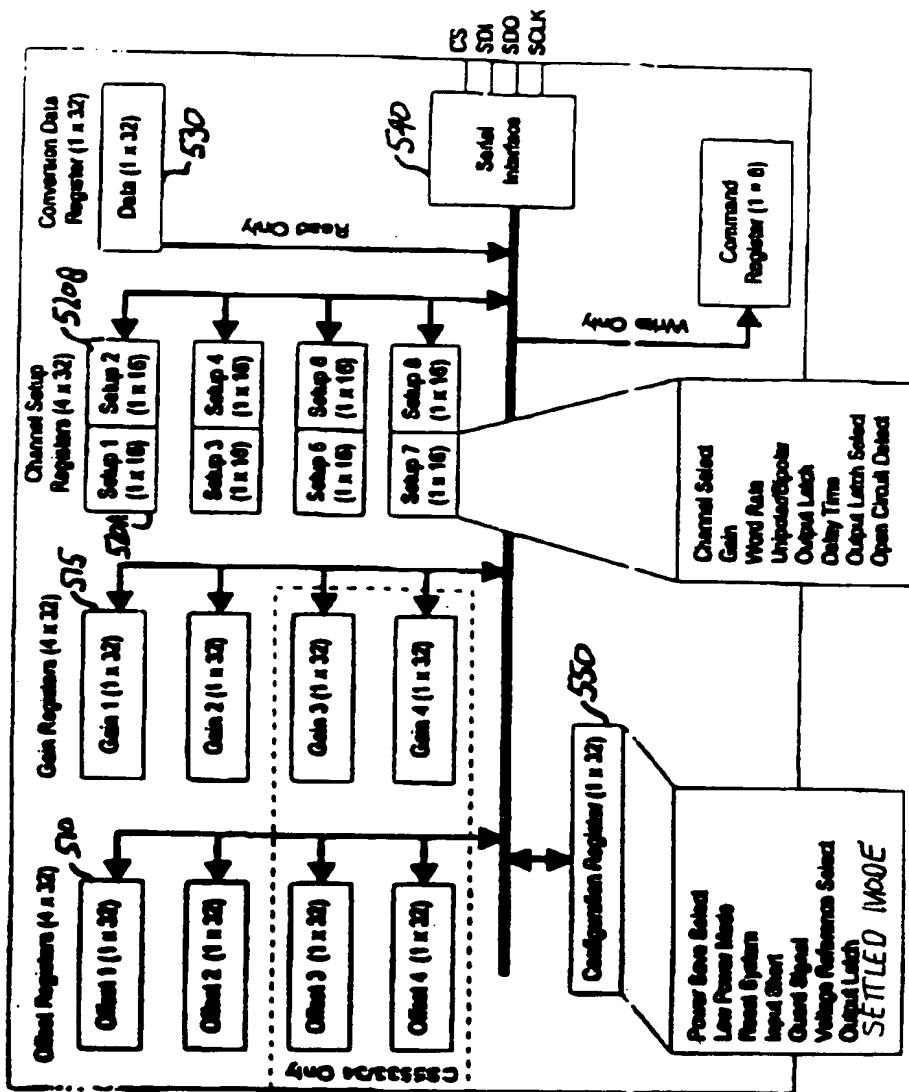


FIGURE 1.6B

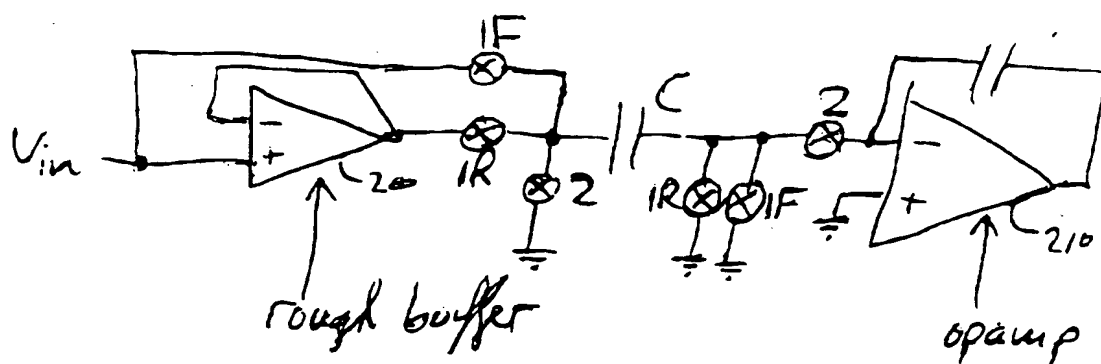


FIGURE 2.0

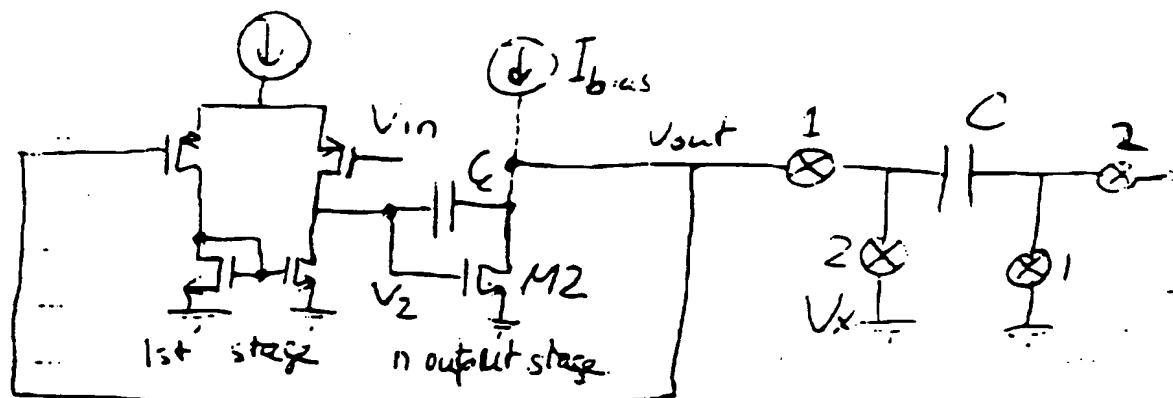


FIGURE 2.1

$$V_{IN} = \text{CONSTANT}$$

$$V_{OUT} > V_X$$

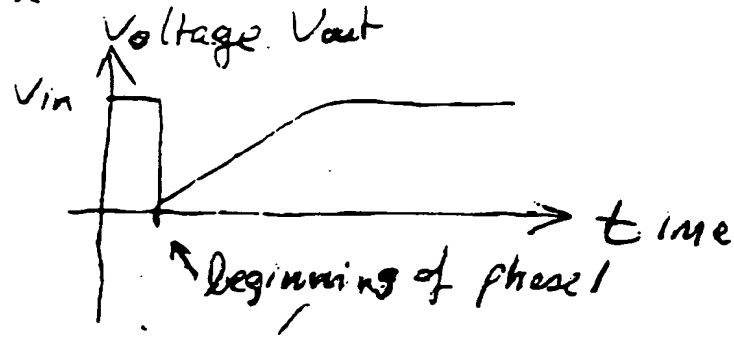


FIGURE 2.2

$$V_{IN} = \text{CONSTANT}$$

$$V_{OUT} < V_X$$

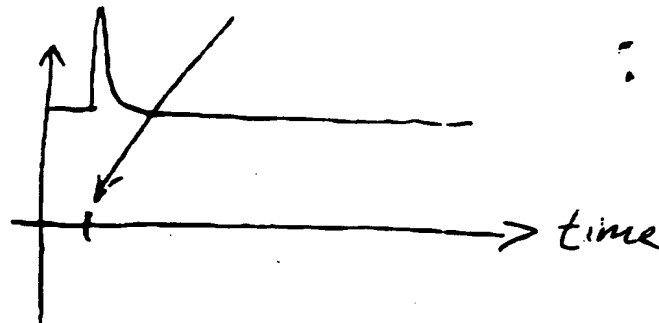


FIGURE 2.3

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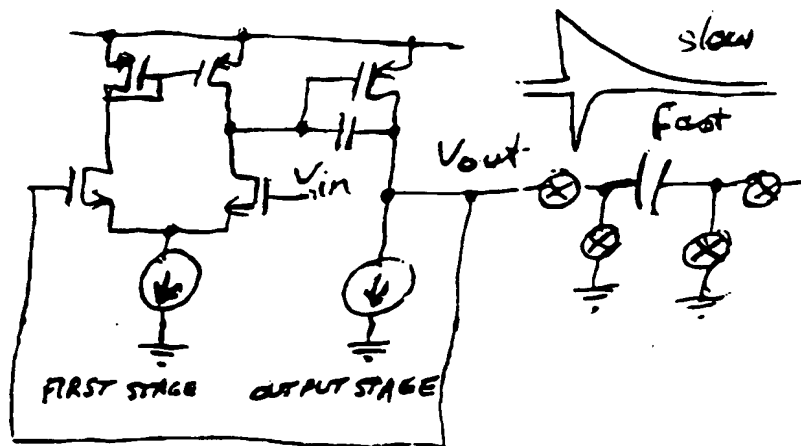


FIGURE 2.4

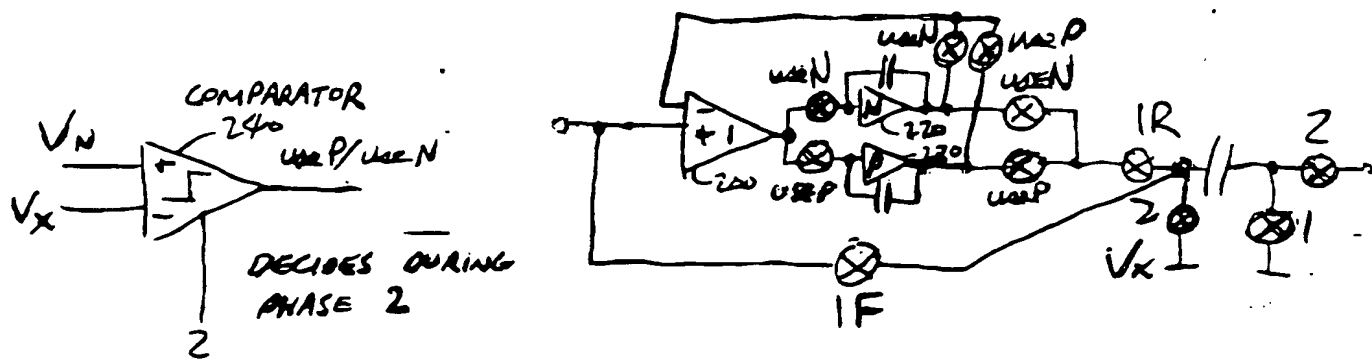


FIGURE 2.5



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FIGURE 2.6

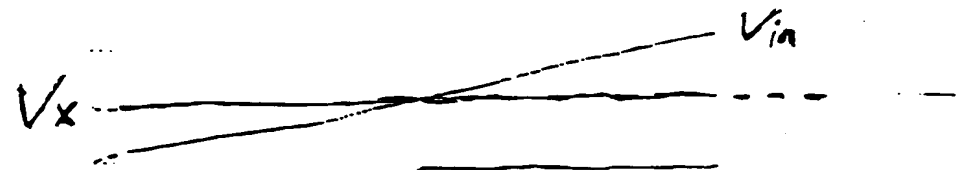


FIGURE 2.7

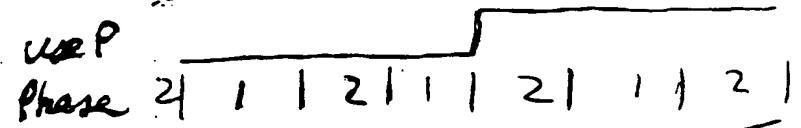
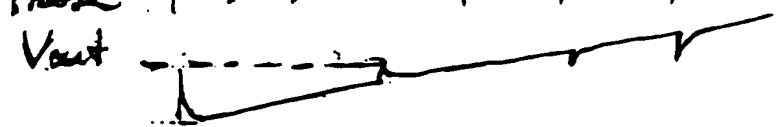


FIGURE 2.8



# MULTIPLIER ARCHITECTURE

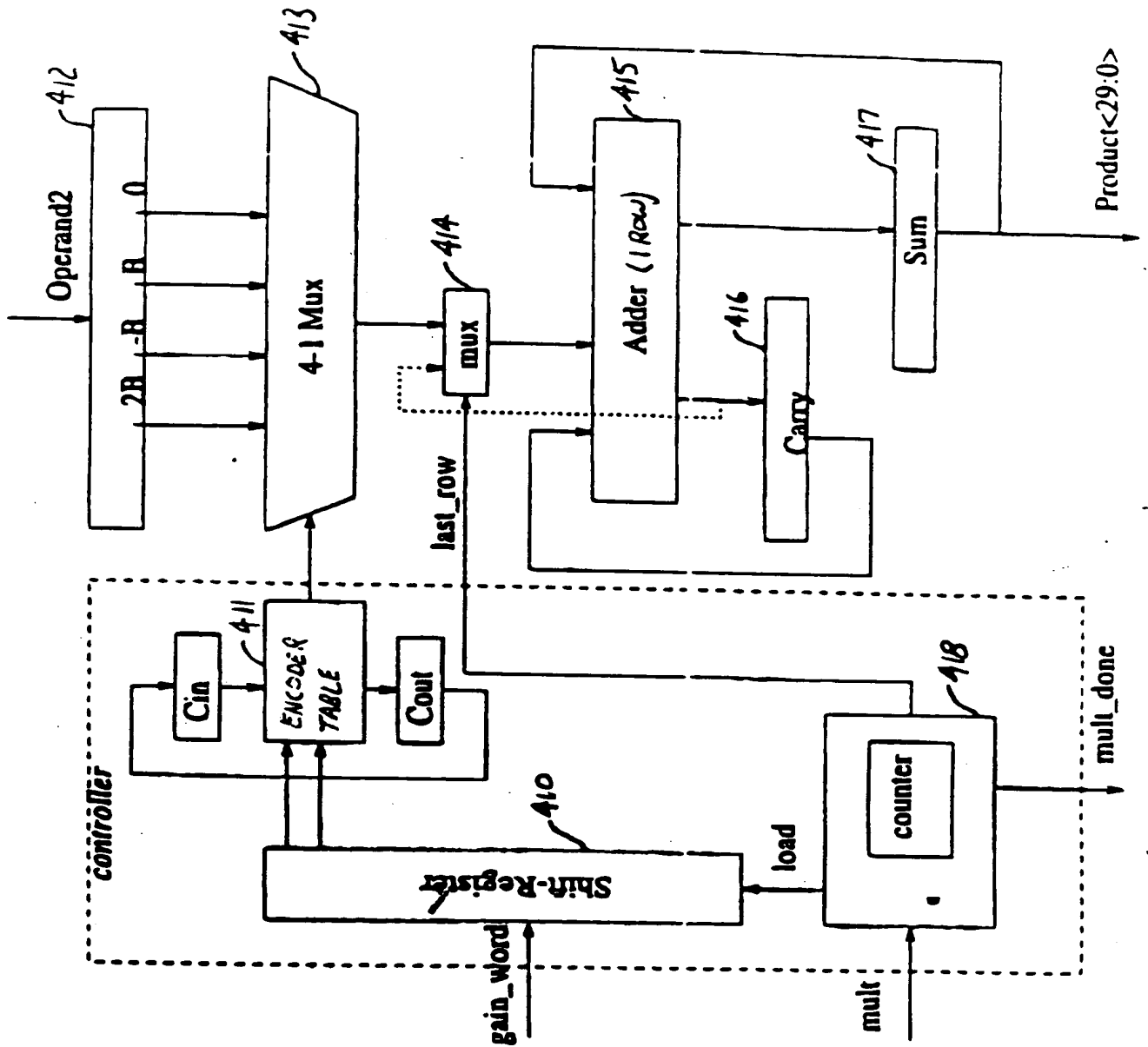


FIGURE 3.1

# Multiplication

Table 2: Encoding Scheme Proposed

$A_{i+1}$	$A_i$	Operation
0	0	$R_i = R_{i-1}/4$
0	1	$R_i = (R_{i-1} + B)/4$
1	0	$R_i = (R_{i-1} + 2B)/4$
1	1	$R_i = (R_{i-1} + 3B)/4$

FIGURE 3.2  
(PRIOR ART)

Table 3: Carry Propagate Encoding Scheme

$C_{in}$	$A_{i+1}$	$A_i$	Operation	$C_{out}$
0	0	0	$R_i = R_{i-1}/4$	0
0	0	1	$R_i = (R_{i-1} + B)/4$	0
0	1	0	$R_i = (R_{i-1} + 2B)/4$	0
0	1	1	$R_i = (R_{i-1} - B)/4$	1
1	0	0	$R_i = (R_{i-1} + B)/4$	0
1	0	1	$R_i = (R_{i-1} + 2B)/4$	0
1	1	0	$R_i = (R_{i-1} - B)/4$	0
1	1	1	$R_i = (R_{i-1})/4$	1

FIGURE 3.3  
(PRIOR ART)

# Multiplication

FIGURE 3.4

Example 1

A=2, B=3 B=0101

A=000010

VVV

20

0

0

0

0

1

111010

110000

110000

110000

000001010

Example 2

A=3, B=3 B=0101

A=111110

VVV

20

0

0

0

0

1

111010

110000

110000

110000

000001010

FIGURE 3.5

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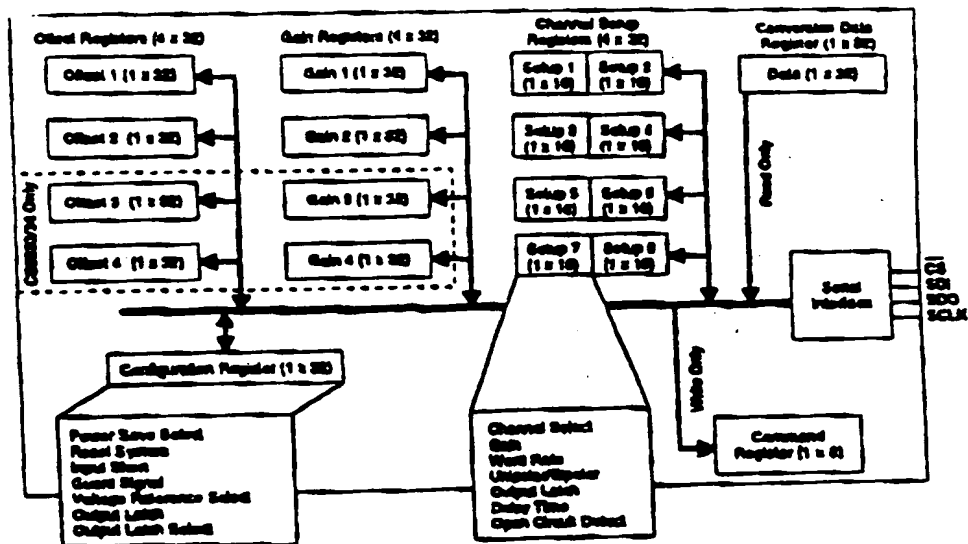


FIGURE 4.1

D7(MSB)	D6	D5	D4	D3	D2	D1	D0
0	ARA	CS1	CS0	R/W	RSB2	RSB1	RSB0

BIT	NAME	VALUE	FUNCTION
D7	Command Bit, C	0	Must be logic 0 for these commands.
		1	These commands are invalid if this bit is logic 1.
D6	Access Registers as Arrays, ARA	0	Ignore this function.
		1	Access the respective registers, offset, gain, or channel-setup, as an array of registers. The particular registers accessed are determined by the RS bits. The registers are accessed MSB first with physical channel 0 accessed first followed by physical channel 1 next and so forth.
D5-D4	Channel Select Bits, CS1-CS0	00	CS1-CS0 provide the address of one of the two (four for CS5533/34) physical input channels. These bits are also used to access the calibration registers associated with the respective physical input channel. Note that these bits are ignored when reading data register.
		01	
		10	
		11	
D3	Read/Write, R/W	0	Write to selected register.
		1	Read from selected register.
D2-D0	Register Select Bit, RSB3-RSB0	000	Reserved
		001	Offset Register
		010	Gain Register
		011	Configuration Register
		100	Conversion Data Register (Read Only)
		101	Channel-Setup Registers
		110	Reserved
		111	Reserved

FIGURE 4.2

D7(MSB)	D6	D5	D4	D3	D2	D1	D0
1	MC	CSRP2	CSRP1	CSRP0	CC2	CC1	CC0

BIT	NAME	VALUE	FUNCTION
D7	Command Bit, C	0	These commands are invalid if this bit is logic 0.
		1	Must be logic 1 for these commands.
D6	Multiple Conversions, MC	0	Perform fully settled single conversions.
		1	Perform conversions continuously.
D5-D3	Channel-Setup Register Pointer Bits, CSRP	000	These bits are used as pointers to the Channel-Setup registers. Either a single conversion or continuous conversions are performed on the channel setup register pointed to by these bits.
		...	
		111	
D2-D0	Conversion/Calibration Bits, CC2-CC0	000	Normal Conversion
		001	Self-Offset Calibration
		010	Self-Gain Calibration
		011	Reserved
		100	Reserved
		101	System-Offset Calibration
		110	System-Gain Calibration
		111	Reserved

FIGURE 4.3

0000110000

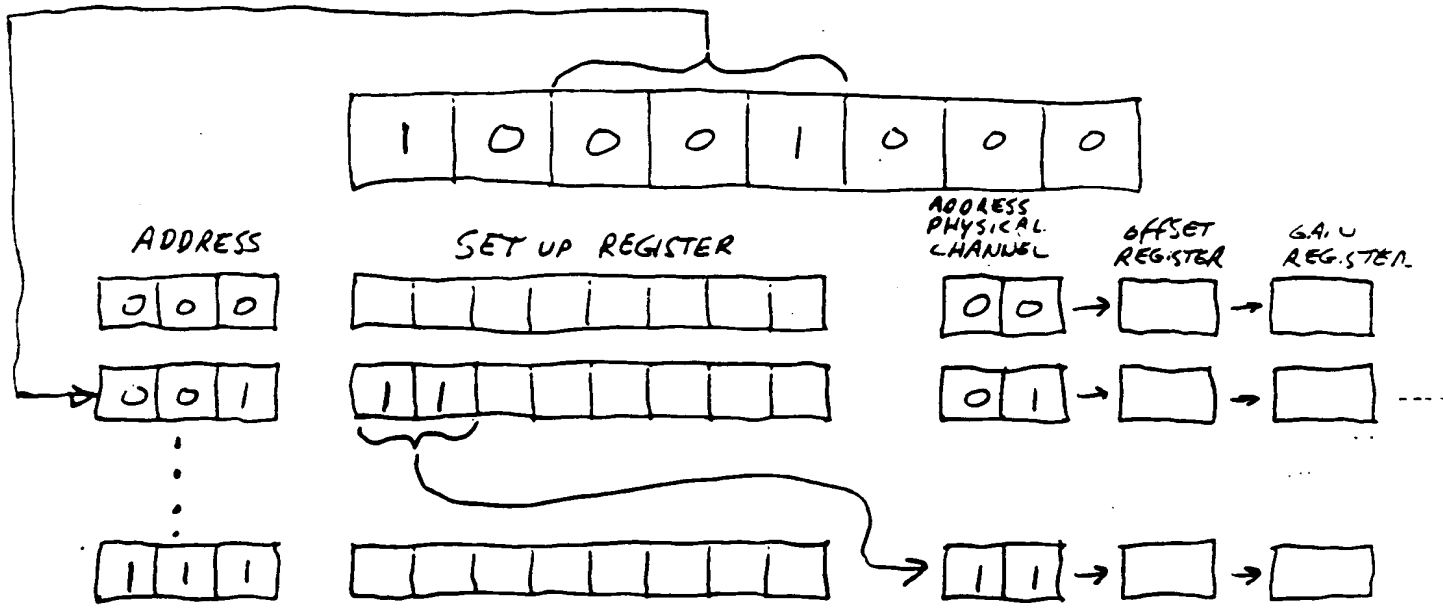


FIGURE 4.4



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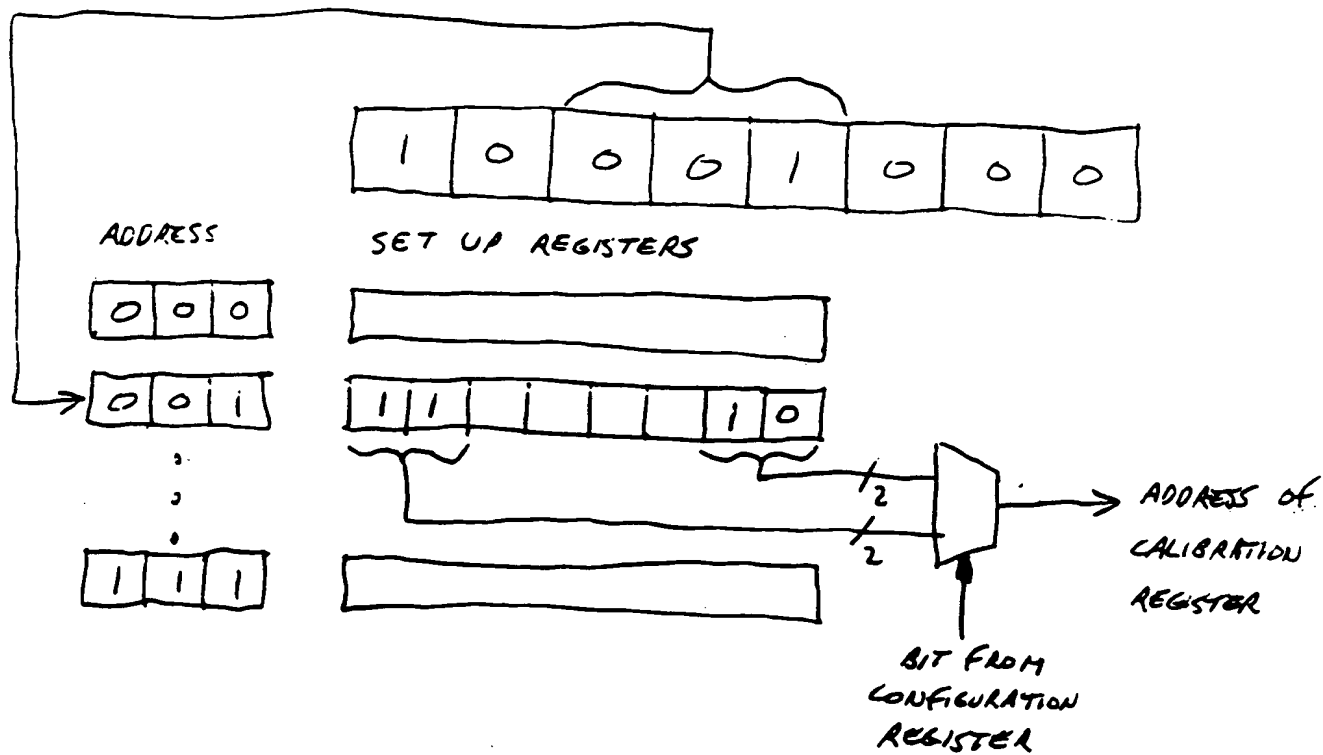


FIGURE 4.5

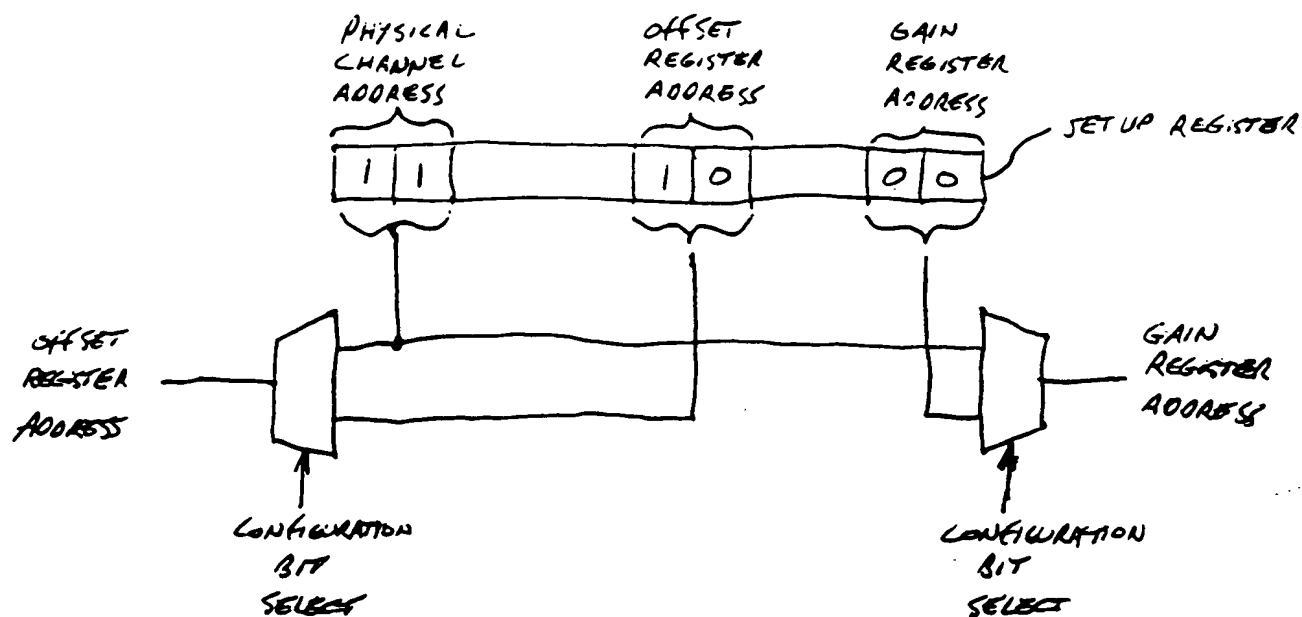
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FIGURE 4.6

INTRODUCE A VALUE OF INTENTIONAL OFFSET  
INSIDE OF CHOPPER STABILIZED AMPLIFIER  
GREATER THAN THE EXPECTED VARIATION IN  
AMPLIFIER INPUT OFFSET

IS OUTPUT OFFSET WITHIN THE RANGE OF  
EXPECTED OUTPUT OFFSET IF CHOPPER  
AMPLIFIER IS WORKING PROPERLY?

1/f NOISE LIKELY TO  
EXCEED SPECIFICATION

1/f NOISE IS BEING  
ELIMINATED WITHIN  
SPECIFICATIONS

FIGURE 5.1

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# Thermocouple Application

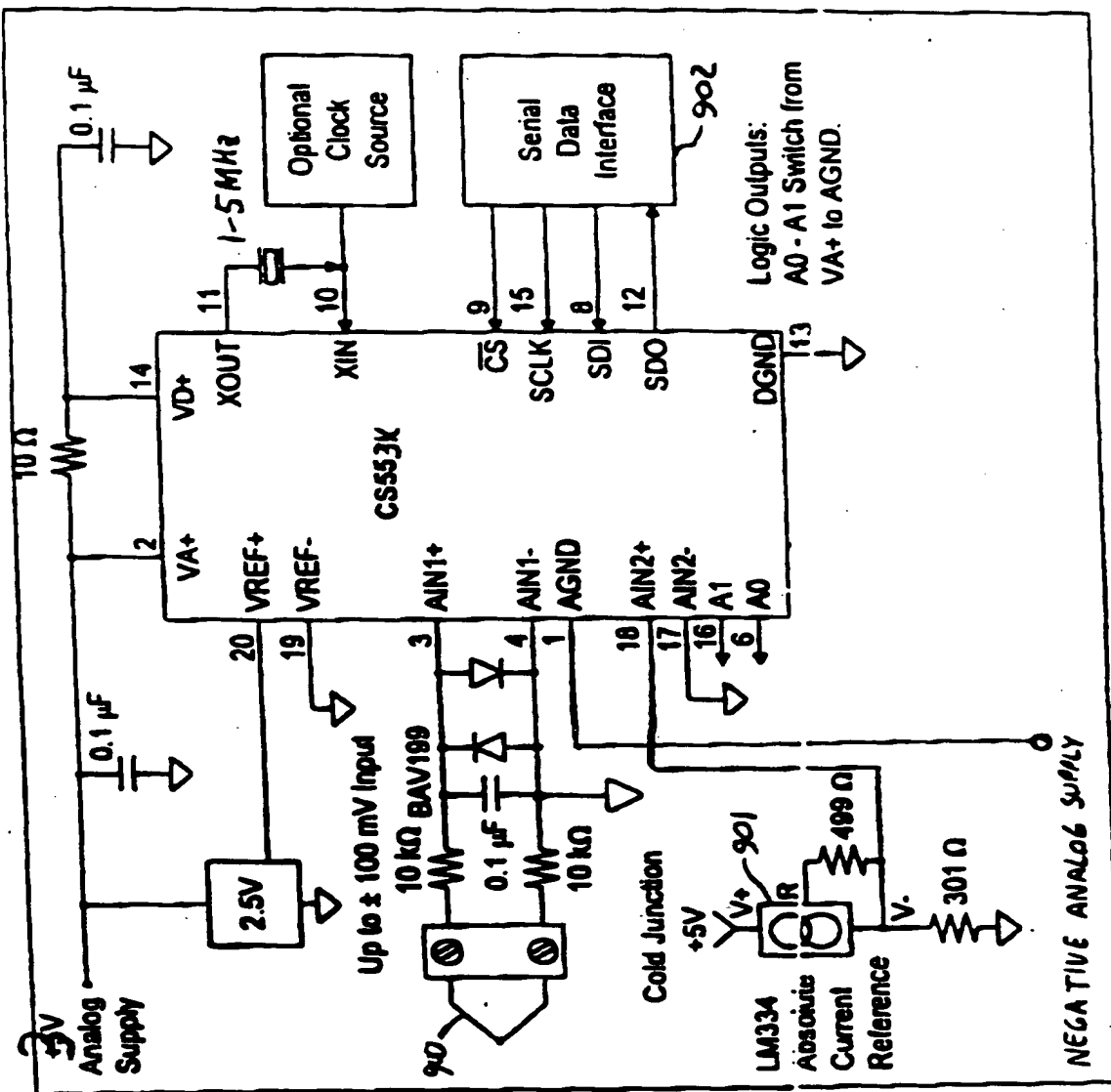


FIGURE 6.1

# Bridge Transducer Application

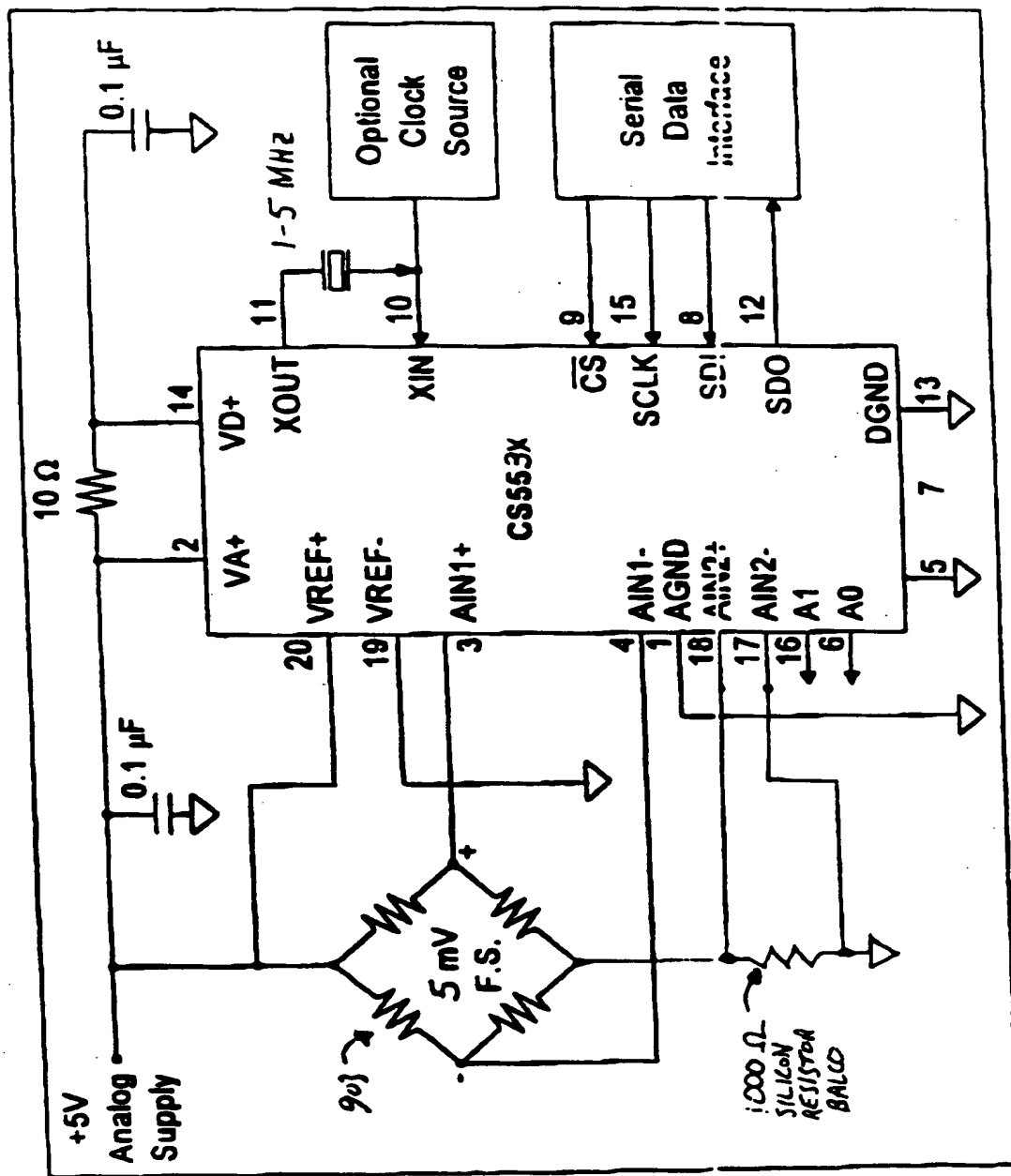


FIGURE 6.2